

Nautili have never since been found floating in troops, nor exercising the bold familiarity, above-mentioned, of walking into the fisherman's nets.

The natural history of this mollusk is important to the *zoologist*, but far more so to the *geologist*. The mysterious nature of those polythalamous tenants of a former world, the *Ammonites* and their multifarious congeners, is at length demonstrated by the discovery of the *Nautilus*, a solitary living remnant, proving that the vast assemblage of those organic remains so abundant in our secondary formations must have belonged to animals who once dwelt in full activity and vigour at the bottom of the ocean, constructing a discoidal shell by force of gravity, and hermetically sealing the vacated portion of it as they increased in bulk, to give them buoyancy under the surrounding pressure*.

XXIII.—*History of a Case in which a Fluid periodically ejected from the Stomach contained Vegetable Organisms of an undescribed form.* By JOHN GOODSIR, Esq., Conservator of the Royal College of Surgeons in Edinburgh †.

THE case detailed by Mr. Goodsir is that of a young man, aged 19, who had laboured for four months under stomach complaint, accompanied with the ejection of a peculiar acid fluid from the stomach. The fluid passed from the stomach every morning without any effort of vomiting. On examining the ejected fluid with the microscope, peculiar organisms were detected, in the form of square or slightly oblong plates. "The flat surfaces were divided into four secondary squares by two rectilinear transparent spaces, which, passing from side to side, intersected one another in the centre, like two cross garden-walks. Each of the four secondary squares was again divided by similarly arranged, but more feebly developed spaces, into four ternary squares. The sixteen ternary squares thus constituted, when examined with deeper powers, were seen to consist each of four cells, which were not separated by transparent spaces, but simply by dissepiments formed by the conjunction of the walls of contiguous cells. These sixty-four cells, of which the organism consisted, did not present in perfect individuals distinct nuclei." The whole organism had the appearance of a wool-pack, or of a soft bundle bound with cord, crossing it four times at right angles and at equal distances: hence Mr. Goodsir gives it the name of *Sarcina*. He considers it to be of a vegetable nature, and to be allied to some of the

* "The *Nautilus*," says Prof. Owen, "is the living, and perhaps sole living archetype of a vast tribe of organized beings, whose fossilized remains testify their existence at a remote period, and in another order of things."

† From the Edinburgh Medical and Surgical Journal, No. 151.

species of *Gonium*, more particularly *Gonium hyalinum*, *glaucum*, and *tranquillum*. The genus *Gonium*, as at present constituted, he thinks consists both of animal and vegetable species.

The following are the generic characters of *Sarcina*:—"Plants coriaceous, transparent, consisting of sixteen, or sixty-four four-celled square frustules, arranged parallel to one another in a square transparent matrix."

The species under consideration is denominated by Mr. Goodsir *Sarcina ventriculi*, and is thus defined: "Frustules sixteen; colour light brown; transparent matrix very perceptible between the frustules, less so around the edges; size 800 to 1000 of an inch.

Hab. The human stomach."

A perfect individual *Sarcina* consists then "of sixty-four ultimate cells, but as soon as each of these again divides into, or produces four new cells, the individual becomes composite, and may forthwith divide into four young ones, each of these again to undergo the same quaternary division." The parts of the individuals are arranged in the square; these parts increase in numbers in a geometrical progression, and the species propagates according to the same law, four in the first generation, sixteen in the second, sixty-four in the third, 256 in the fourth, 1024 in the fifth, and so on with a rapidity peculiar to such a series of numbers. The liquid of the stomach in which the *Sarcina* was found, was analysed by Dr. George Wilson, Lecturer on Chemistry in Edinburgh; he found three acids in it,—hydrochloric, acetic, and lactic. The first was present in very small quantity, while the two others (more especially the acetic) were abundant.

Since the publication of Mr. Goodsir's paper, similar organisms have been detected in other cases of stomach complaint by Dr. J. H. Davidson and Mr. Benjamin Joseph Bell, of Edinburgh.

XXIV.—On the Parasitic Vegetable Structures found growing in Living Animals. By J. H. BENNETT, M.D.*

THE objects of this memoir, as stated by the author, are—"1st, to confirm and extend the observations and experiments of Gruby concerning the mycodermatous vegetations found in the crusts of the disease called *Tinea favosa*, or *Porriigo lupinosa* of Bateman; 2nd, to announce the occasional existence, and describe a plant found growing on the lining membrane or cheesy matter of tubercular cavities in the lungs of man; 3rd, to describe the structure of a plant found growing on the skin of the gold-fish; and 4th, from a review of all the facts hitherto recorded in connexion with this subject, to draw certain conclusions respecting the pathological state which furnishes the conditions necessary for the growth of fungi in living animals."

* In the Transactions of the Royal Society of Edinburgh, vol. xv.